INTEGRATED CIRCUIT DEVICES INCLUDING AN INTAGLIO PATTERN AND METHODS FOR FABRICATING THE SAME

ABSTRACT OF THE DISCLOSURE

Integrated circuit devices and methods of fabricating the same include an interlayer dielectric formed on an integrated circuit substrate. A plurality of buried contacts are formed in the interlayer dielectric and an oxide layer is formed on the interlayer dielectric. An intaglio pattern is formed in the oxide layer that exposes the plurality of buried contacts and a plurality of lower electrodes are formed within a single opening in the intaglio pattern. The lower electrodes are in electrical contact with corresponding ones of the buried contacts. The lower electrodes may be formed symmetrically in the intaglio pattern and may be semicylindrical electrodes. The integrated circuit device may be a ferroelectric memory device and forming a plurality of lower electrodes may include forming a plurality of capacitors.